

## REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

### Status of the Claims

Claims 1 and 10 are currently being amended. Claims 19, 20 and 21 are being added. Claims No new matter is added.

### Claim Objections

Claims 1 was objected to because of the informality of the word “sail” in line 12. Claims 2-8 were objected to for directly or indirectly, depending on objected claim 1. Claim 1 is amended to recite “said” instead of “sail.” Thus it is respectfully requested that the objection is withdrawn.

### Claim Rejections – 35 USC §103

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hirose et al., (U.S. Patent Publication No. 2001-202837 A) in view of Graneau et al., (U.S. Patent No. 3,646,243). There rejections are respectfully traversed.

Claim 10 as amended recites, *inter alia*,

a plurality of cooling mechanisms that cool a refrigerant and are operatively coupled to each of said parallel refrigerant flow paths;

wherein the refrigerant flow path comprises a plurality of first pipes located on the upstream side with respect to said superconducting cable to provide the refrigerant to said superconducting cable; a plurality of second pipes located on the downstream side with respect to said superconducting cable to allow the refrigerant that has cooled said superconducting cable to pass through; and wherein the plurality of first pipes are connected to each other and said plurality of second pipes are connected to each other.

Hirose and Graneau, alone or in combination fail to teach, suggest or render predictable at least the above recited claimed features. Hirose, teaches providing a cooling system including a freezer in the longitudinal direction of the cable for every constant interval, in order to always hold a very low temperature. (Hirose, ¶ 3) In particular, Hirose teaches a cooling system that is in a “longitudinal direction” and does not teach or suggest “a plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths, wherein the parallel refrigerant flow paths comprising a plurality of first pipes located on the upstream side, a plurality of second pipes located on the downstream side and wherein the plurality of first pipes are connected to each other and said plurality of second pipes are connected to each other.” (Claim 10) Instead, Hirose on many instances teaches away from the above claimed features. For example, Hirose teaches the “refrigerant flow rate must be made to increase especially at the time of an overload.” (Hirose, ¶ 4) Next, in the “means for solving the problem” section, Hirose teaches, filling the inside of the cable core with a lower temperature refrigerant than the outside of the cable core as the preferred method for lowering the refrigerant temperature. (Hirose, ¶ 7) Therefore, Hirose teaches away from a plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths and the plurality of first pipes are connected to each other and said plurality of second pipes are connected to each other.

The Office Action of February 12, 2009 partially recognizes this, and admits that Hirose fails to teach plurality of cable circuit, control mechanism and switching mechanism and a failed circuit to provide refrigerant to a good circuit and cites Graneau as disclosing the above features. (Office Action of February 12, Page 3, lines 13-15) However, the Office Action of February 12, 2009, fails to recognize that neither Hirose nor Graneau teach, suggest or render predictable, the features of amended claim 10, such as but not limited to, a plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths and the plurality of first pipes are connected to each other and said plurality of second pipes are connected to each other.

Graneau is cited as curing the above cited deficiencies of Hirose. (Page 3) However, Graneau fails to teach, suggest or render predictable, a plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths and the plurality of first

pipes are connected to each other and said plurality of second pipes are connected to each other. Instead, the conductors 12 are configured receive the refrigerant from refrigerator 17 and thus, said conductors 12 do not have plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths. (Graneau, Fig. 1)

Therefore, claim 10 is believed to be allowable for at least the reason stated above. Because claims 19-21 depend from claim 1, they are believed to be allowable for at least the same reasons claim 10 is believed to be allowable.

### New Claims

New claims 19 – 21 are added to further protect aspects of the present invention. New claims 19 – 21 are supported by the present disclosure, at least with respect to claims 19-21 (For example, Fig. 1, Pages 10 and 11 of the Original Specification). New claims 19 – 21 are each dependent on independent claim 10. Accordingly, each of the new claims 19 – 21 are patentably distinguishable over the references of record, at least for reasons as discussed above with respect to claim 10. In addition each new claim 19-21 are further distinguished from the references of record.

For example, new claim 19 is dependent on claim 10, and incorporate every features of claim 10 and further recites, the connected second pipes are adapted to route the refrigerant to the connected first pipes. Graneau et al. fail to teach the connected second pipes are adapted to route the refrigerant to the connected first pipes. Instead Graneau et al. routes the refrigerant to valve 64 which the refrigerant to either a second circuit 12 or to a second refrigerant 17'. Hirose fails to cure the above deficiencies of Graneau et al., since Hirose teaches a series flow path instead of a parallel flow path. Therefore claim 19 is believed to be allowable.

For example, new claim 20 is dependent on claim 10, and incorporate every features of claim 10 and further recites, the refrigerant route switching mechanisms are located on both upstream and downstream from the cooling mechanisms. As discussed above regarding claim 10, Hirose and Graneau fail to address the distinctions of the parent claim 10. Therefore claim 20 is believed to be allowable.

For example, new claim 21 is dependent from claims 10 and 20, and incorporate every features of claims 10 and 20 and further recites, the refrigerant route switching mechanisms are located downstream from the plurality of superconducting cables. As discussed above regarding claim 10, plurality of cooling mechanisms that are operatively coupled to each of said parallel refrigerant flow paths. Therefore claim 21 is believed to be allowable.

Concluding Remarks

After amending the claims as set forth above, claims 1-8 and 10-21 are now pending in this application.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

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